

# Preserve at Green Cove Springs

*City of Green Cove Springs, Florida*

## Traffic Impact Analysis



Prepared for:

**PC Acquisitions, LLC**



Prepared by:



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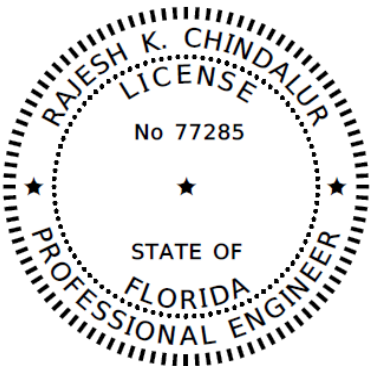
Project No.: 1146-220-007  
Date: 05/16/2022

## PROFESSIONAL ENGINEER CERTIFICATE

I, Rajesh Ramn K. Chindalur, PE #77285, certify that I currently hold an active license in the state of Florida and am competent through education or experience to provide engineering services in the civil discipline contained in this plan, print, specification, or report.

PROJECT:	<b>Preserve at Green Cove Springs – Traffic Impact Analysis</b>
LOCATION:	City of Green Cove Springs, Clay County, Florida
CLIENT:	PC Acquisitions, LLC

I further certify that this plan, print, specification, or report was prepared by me or under my responsible charge as defined in Chapter 61G15-18.001 F.A.C. Moreover, if offered by a corporation, partnership, or through a fictitious name, I certify that the company offering the engineering services, Chindalur Traffic Solutions, Inc., 8833 Perimeter Park Boulevard, Suite 103, Jacksonville, Florida 32216, holds an active certificate of authorization #30806 to provide engineering service.



*THIS ITEM HAS BEEN DIGITALLY  
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*ON THE DATE ADJACENT TO THE SEAL.*

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*CHINDALUR TRAFFIC SOLUTIONS, INC.  
8833 PERIMETER PARK BOULEVARD, SUITE 103  
JACKSONVILLE, FL 32216  
CERTIFICATE OF AUTHORIZATION #30806  
RAJESH RAMN K. CHINDALUR, P.E. NO. 77285*

*THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THIS DOCUMENT IN  
ACCORDANCE WITH RULE 61G15-23.004, F.A.C.*

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## Summary and Conclusions

A multi-family residential development that is anticipated to include 260 dwelling units is proposed for construction in the City of Green Cove Springs, FL. The proposed development will be located on the northeast quadrant of US 17 and CR 209. Access to the proposed development will be provided via a right-in-right-out driveway on US 17 and a second driveway on CR 209. Please note that the zoning allows for a maximum of 278 dwelling units. However, based on the current site plan a maximum of 260 dwelling is proposed for construction.

US 17 is a four-lane divided highway with a posted speed of 60 miles per hour (mph) and CR 209 South is a two-lane undivided roadway with a posted speed of 55 mph.

The proposed residential development is anticipated to generate 1,742 Daily trips which includes 103 AM peak and 132 PM peak trips.

The study area will include all the roadway segments and intersections where in the project traffic is anticipated to be equal to or greater than five percent (5%) of the roadway segment adopted LOS maximum service volume (MSV).

Project traffic distribution percentages on the study roadway segments using the interim year 2025 NERPM\_ABv3 travel demand model run.

The proposed development is anticipated to be constructed and occupied by the end of year 2025. However, the traffic impact analysis will be performed under the year 2027 conditions. The future traffic volumes on the study roadway segments were estimated by applying a growth rate to the year 2019 and 2022 traffic volumes. The growth rate was estimated by performing trends analysis of the study roadway segments historical AADT.

The roadway segment will be considered impacted if the project traffic assignment (new trips) is equal to or greater than 5% of its adopted LOS maximum service volume (MSV). A study area roadway segment will be considered adversely impacted if that roadway segment is impacted (project new trips 5% of its adopted LOS MSV) and the total traffic (Existing trips + Reserved Trips + New Project Traffic) exceed 100% of the roadway segments adopted LOS MSV.

None of the study roadway segments are anticipated to be either impacted or adversely impacted under the build-out conditions of the proposed development. Additionally, all the study roadway segments are anticipated to continue operating at LOS D or better under the year 2027 background and project build-out conditions, except for the segment of US 17 between the City of Green Cove Springs City Limits to SR 16 West/Ferris Street. The segment of US 17 between the City of Green Cove Springs City Limits to SR 16 West/Ferris Street is anticipated to operate at LOS F under the year 2027 background and build-out conditions of the proposed development.

Please note that the proposed First Coast Expressway and other proposed roadway improvements (Clay County Programmed Bonded Roadway Improvements) are anticipated to reduce traffic volumes on US 17 roadway segments within the City of Green Cove Springs.

Based on the discussions with FDOT staff, the project access on US 17 will be a right-in-right-out just north of CR 209 intersection and a full access roadway connection on CR 209 South just east of US 17. The above-mentioned access locations are shown in previously mentioned site plan. FDOT staff require the access evaluation to determine the following:

- The need for a northbound right turn lane on US 17 at the proposed project access driveway
- Adequacy of the existing southbound left turn lane on US 17 at CR 209 South intersection

A northbound right turn lane is anticipated to be warranted on US 17 at the proposed Project Access Driveway. As per the guidance included in Chapter 212 of the FDOT Design Manual and the FDOT Median Handbook, for a roadway with a posted speed of 60 mph (design speed of 65 mph), a right turn lane should include 460 feet deceleration and taper distance.

All the critical movements are currently operating at LOS D or better and are anticipated to continue operating at LOS D or better under the future year 2027 background and year 2027 build-out conditions of the proposed development.

The existing southbound left turn on US 17 at CR 209 South is approximately 430 feet long (250 feet full width turn lane + 180 feet taper distance). The 95<sup>th</sup> percentile queue length on the southbound left turn is anticipated to be no greater than 50 feet. Hence, the existing southbound left turn lane on US 17 at CR 209 South is anticipated to be adequate under the build-out conditions of the proposed development.

### **Introduction**

A multi-family residential development that is anticipated to include 260 units is proposed for construction in the City of Green Cove Springs, FL. The proposed development will be located on the northeast quadrant of US 17 and CR 209. Access to the proposed development will be provided via a right-in-right-out driveway on US 17 and a second driveway on CR 209. A copy of the site plan provided by Matthews Design Group, Inc. is included as **Attachment A**. Please note that the zoning allows for a maximum of 278 dwelling units. However, based on the current site plan a maximum of 260 dwelling is proposed for construction.

The methodology used in this study is consistent with the methodology document provided to the City of Green Cove Springs on 05/10/2022. A copy of the methodology provided to the staff is included as **Attachment B**.

### **Trip Generation**

Trip generation and for the proposed residential portion of the development will be estimated using the rates and equations included in the Trip Generation Manual, 11<sup>th</sup> Edition published by the ITE. Attached **Table 01** summarizes the Daily, AM and PM peak trips anticipated by the proposed development. As shown in this table, the proposed residential development is anticipated to generate 1,742 Daily trips which includes 103 AM peak and 132 PM peak trips.

### **US 17 and CR 209 South Existing Conditions**

US 17 is a four-lane divided highway with a posted speed of 60 miles per hour (mph) and CR 209 South is a two-lane undivided roadway with a posted speed of 55 mph. **Figure 02** shows the existing conditions on US 17 and CR 209 at the proposed project access locations.

### **Study Roadway Segments and Intersections**

Since the proposed development is anticipated to generate a total of 132 PM peak trips, the study area will include all the roadway segments and intersections where in the project traffic is anticipated to be equal to or greater than five percent (5%) of the roadway segment adopted LOS maximum service volume (MSV). **Table 02** shows the existing conditions of the roadway segments within the vicinity of the proposed development. The existing conditions data for the study roadway segments were obtained from the FDOT traffic counts and Clay County Transportation Analysis Spreadsheet. As shown in this table, all the study roadway segments are currently operating at LOS D or better.

### **Planned and Programmed Roadways:**

The County Capital Improvement Plan (CIP), FDOT Planned and Programmed Improvements and NFTP0 LRTP will be reviewed to determine any planned and programmed roadways within study roadway segments. **Attachment C** includes a list of planned and programmed roadways within Clay County in addition to the First Coast Expressway between existing SR 23/Old Jennings Road to US 17.

### **Project Traffic Distribution & Assignment:**

Project traffic distribution percentages on the study roadway segments using the interim year 2025 NERPM\_ABv3 travel demand model run. **Attachment D** includes copies of the travel

demand model plots. **Table 03** summarizes the project traffic distribution and assignment on the roadway segments in the vicinity of the proposed development. **Figure 03** shows project traffic distribution and assignment on the study roadway segments.

#### **Future Traffic Volumes:**

The proposed development is anticipated to be constructed and occupied by the end of year 2025. However, the traffic impact analysis will be performed under the year 2027 conditions. The future traffic volumes on the study roadway segments were estimated by applying a growth rate to the year 2019 and 2022 traffic volumes. The growth rate was estimated by performing trends analysis of the study roadway segments historical AADT. The historical AADT of the study roadway segments was obtained from the FDOT Traffic Counts Online Portal. **Attachment E** includes copies of the historical AADT, and the trends analysis of the study roadway segments.

#### **Roadway Segment Analysis:**

The segment analysis of the study area roadway segments will be performed to determine any impacts and adverse impacts due to the additional trips from the proposed development. The roadway segment will be considered impacted if the project traffic assignment (new trips) is equal to or greater than 5% of its adopted LOS maximum service volume (MSV). A study area roadway segment will be considered adversely impacted if that roadway segment is impacted (project new trips 5% of its adopted LOS MSV) and the total traffic (Existing trips + Reserved Trips + New Project Traffic) exceed 100% of the roadway segments adopted LOS MSV.

**Table 04** summarizes the roadway segments analysis of the study roadway segments. As shown in this table, none of the study roadway segments are anticipated to be either impacted or adversely impacted under the build-out conditions of the proposed development. Additionally, all the study roadway segments are anticipated to continue operating at LOS D or better under the year 2027 background and project build-out conditions, except for the segment of US 17 between the City of Green Cove Springs City Limits to SR 16 West/Ferris Street. The segment of US 17 between the City of Green Cove Springs City Limits to SR 16 West/Ferris Street is anticipated to operate at LOS F under the year 2027 background and build-out conditions of the proposed development.

Please note that the proposed First Coast Expressway and other proposed roadway improvements (Clay County Programmed Bonded Roadway Improvements) are anticipated to reduce traffic volumes on US 17 roadway segments within the City of Green Cove Springs.

#### **Intersection Capacity Analysis and Access Intersections:**

Based on the discussions with FDOT staff, the project access on US 17 will be a right-in-right-out just north of CR 209 intersection and a full access roadway connection on CR 209 South just east of US 17. The above-mentioned access locations are shown in previously mentioned site plan. FDOT staff require the access evaluation to determine the following:

- The need for a northbound right turn lane on US 17 at the proposed project access driveway
- Adequacy of the existing southbound left turn lane on US 17 at CR 209 South intersection

Since the project traffic is not anticipated to be equal or greater than the study roadway segments' adopted LOS maximum service volume (MSV), intersection analysis other than the above stated intersections is not anticipated to be required.

**Existing Traffic Volumes:** AM peak and PM peak hour traffic volumes at the above stated study intersections were obtained on April 26<sup>th</sup>, 2022. These counts were further adjusted with a season factor of 1.19 to account for seasonal variations. This season factor was obtained from the Florida Department of Transportation (FDOT) traffic counts online portal. **Attachment F** includes copies of the traffic counts data and the FDOT season factors. **Figure 04** shows the year 2022 peak hour traffic volumes at the above stated study intersections.

**Year 2027 Background Traffic Volumes:** The year 2027 background traffic volumes at the above stated study intersections were estimated by applying a growth factor of 1.30 to the year 2022 traffic volumes. This growth factor was estimated by performing trends analysis of the historical AADT on US 17 north of CR 209 South (included in previously stated **Attachment E**). The year 2027 background conditions peak hour traffic volumes at the study intersections are shown in **Figure 05**.

**Project Traffic Distribution and Assignment:** Project traffic assignment at the above stated study intersections were established by applying the project traffic distribution obtained from the travel demand model run to the peak hour net external trips shown in previously stated **Table 01**. **Figure 06** shows the AM peak and PM peak project traffic assignment at the above stated study intersections.

**Year 2027 Build-out Traffic Volumes:** The year 2027 build-out traffic volumes include the year 2027 background traffic volumes and the peak hour project related traffic assignment at the study intersections. **Figure 07** includes the year 2027 build-out conditions AM peak and PM peak hour traffic volumes at the study intersections.

**Right Turn Lane Evaluation:** The need for a northbound right turn lane on US 17 at the proposed project access roadway was evaluated using the right turn lane criteria included in the in the FDOT Access Management Guidebook (**Attachment G**). As shown in previously stated **Figure 07**, about 30 northbound right turns are anticipated on US 17 which is very close to the right turn lane threshold of 35 peak hour turns. Hence, a northbound right turn lane is anticipated to be warranted on US 17 at the proposed Project Access Driveway. As per the guidance included in Chapter 212 of the FDOT Design Manual and the FDOT Median Handbook, for a roadway with a posted speed of 60 mph (design speed of 65 mph), a right turn lane should include 460 feet deceleration and taper distance.

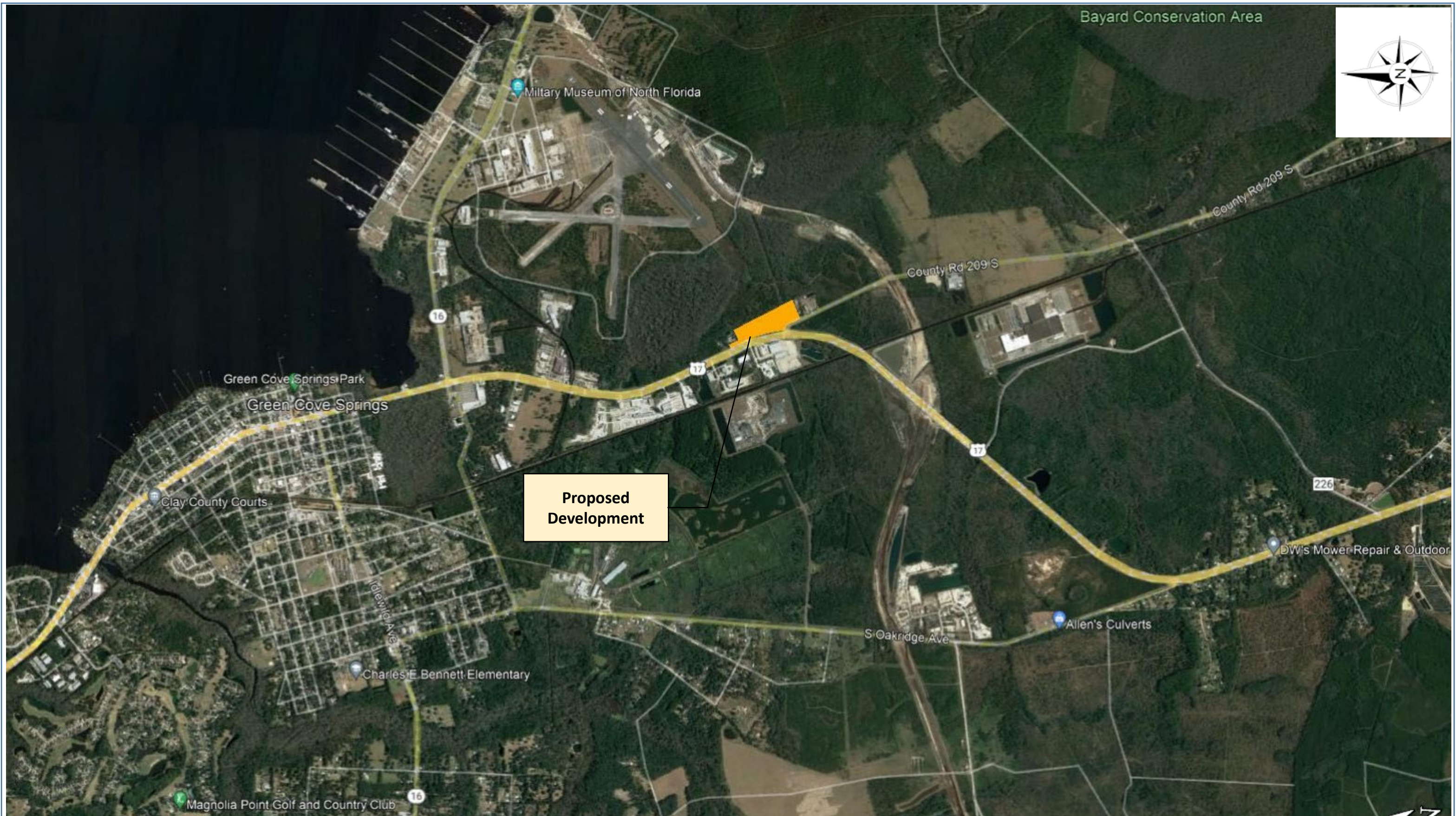
**Intersection Capacity Analysis:** Intersection capacity analysis of the study intersections under the year 2022 existing conditions, year 2027 background and year 2027 build-out conditions was performed using the Synchro 11 software. This software uses the HCM 6 criteria and methodology to determine the LOS and delay at un-signalized intersections. **Table 05** summarizes the delay and LOS for all the critical movements at the study intersections. As shown in this table, all the critical movements are currently operating at LOS D or better and are anticipated to continue operating at



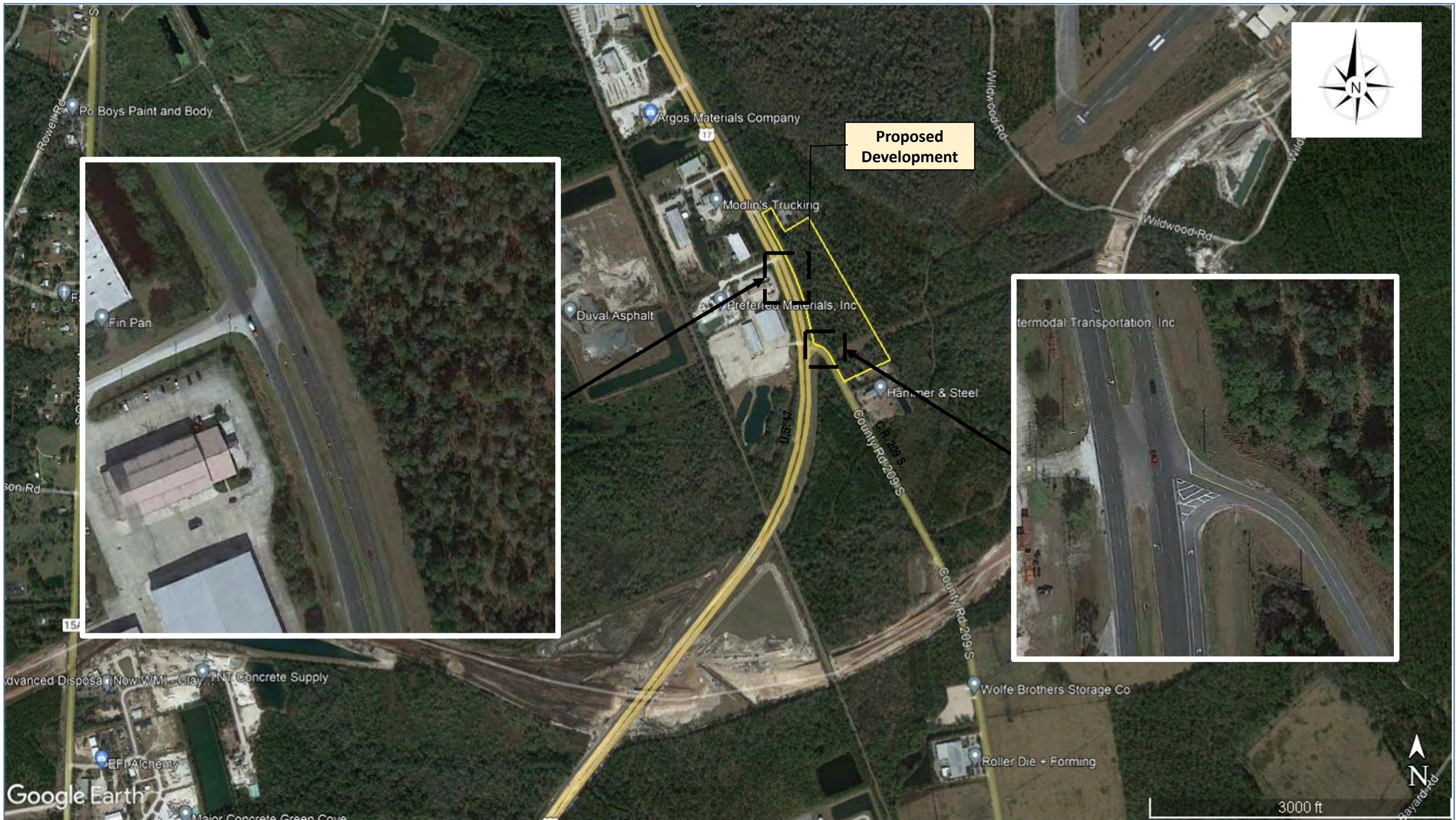
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LOS D or better under the future year 2027 background and year 2027 build-out conditions of the proposed development. **Attachment H** includes copies of the HCM Worksheets.

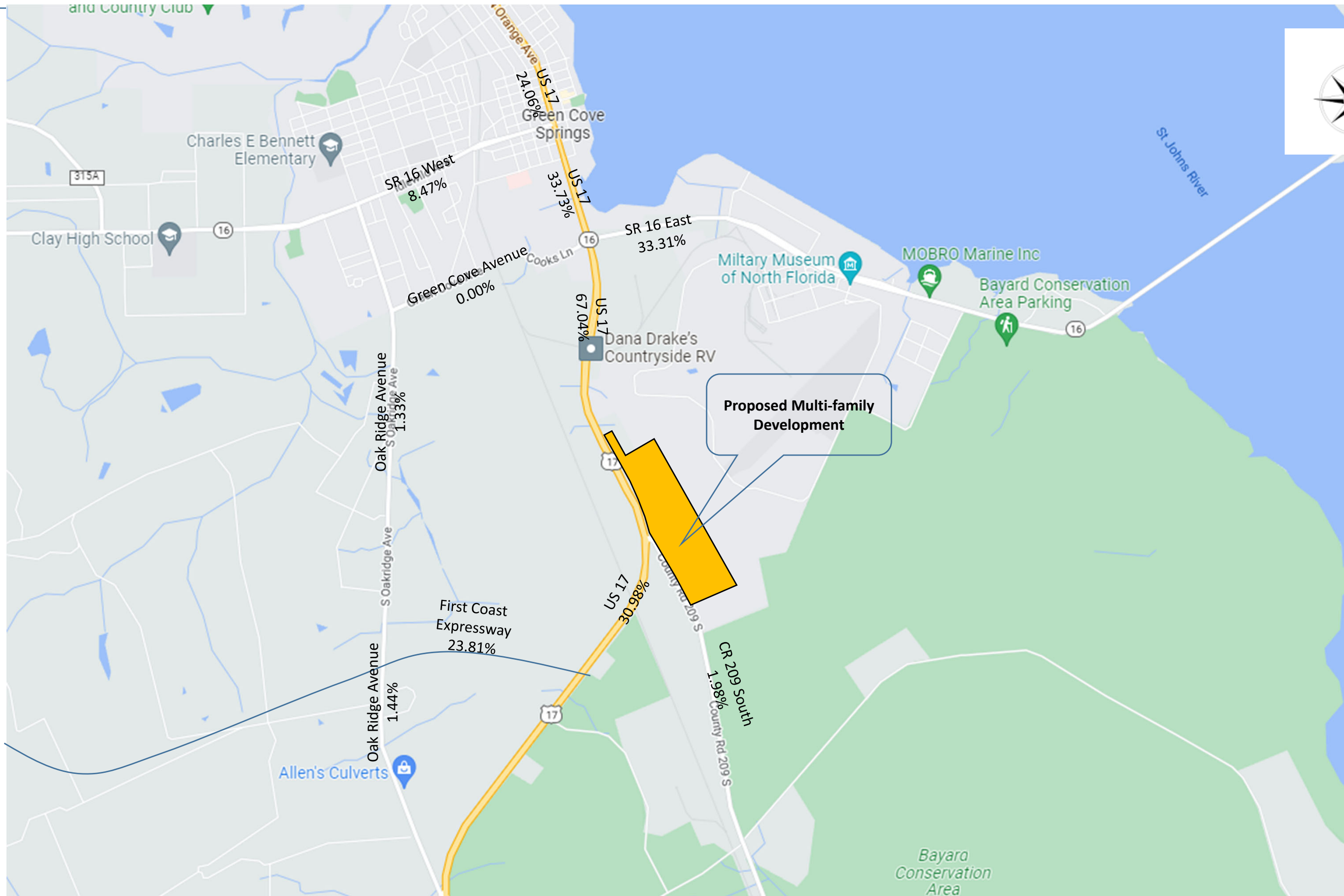
This table also summarizes the 95<sup>th</sup> percentile queue length on the southbound left turn at the US 17 and CR 209 South intersection under the existing, year 2027 background and year 2027 build-out conditions. The existing southbound left turn on US 17 at CR 209 South is approximately 430 feet long (250 feet full width turn lane + 180 feet taper distance). As shown in this table, the 95<sup>th</sup> percentile queue length on the southbound left turn is anticipated to be no greater than 50 feet. Hence, the existing southbound left turn lane on US 17 at CR 209 South is anticipated to be adequate under the build-out conditions of the proposed development.



**Figure 01 – Location Map**  
 Preserve at Green Cove Springs – Traffic Impact Study  
 City of Green Cove Springs, Clay County, Florida



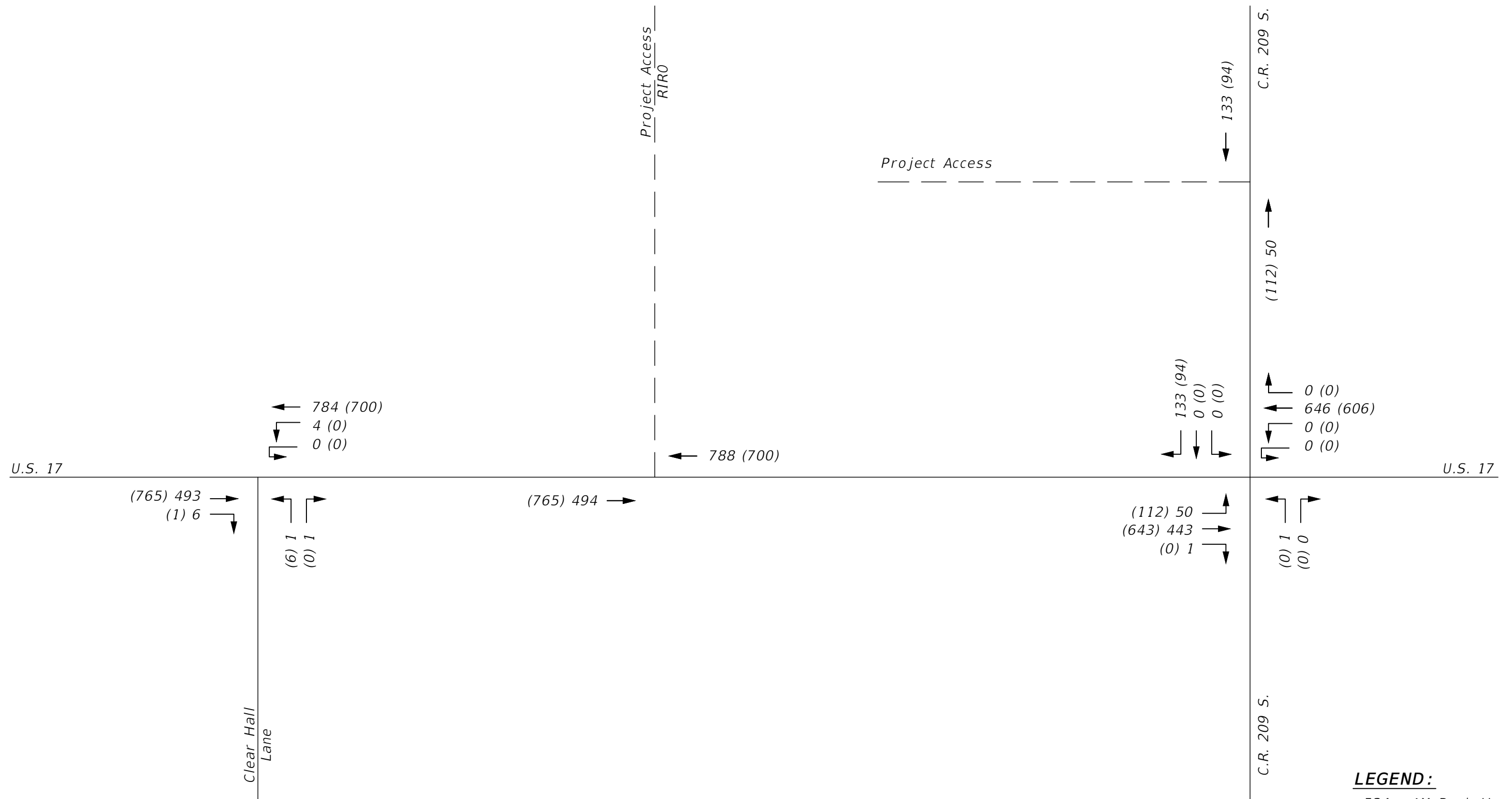
**Figure 02 – Existing Conditions**  
 Preserve at Green Cove Springs – Traffic Impact Study  
 City of Green Cove Springs, Clay County, Florida



**Proposed Multi-family Development**

**Figure 03 – Project Traffic Distribution and Assignment**  
 Preserve at Green Cove Springs – Traffic Impact Study  
 City of Green Cove Springs, Clay County, Florida





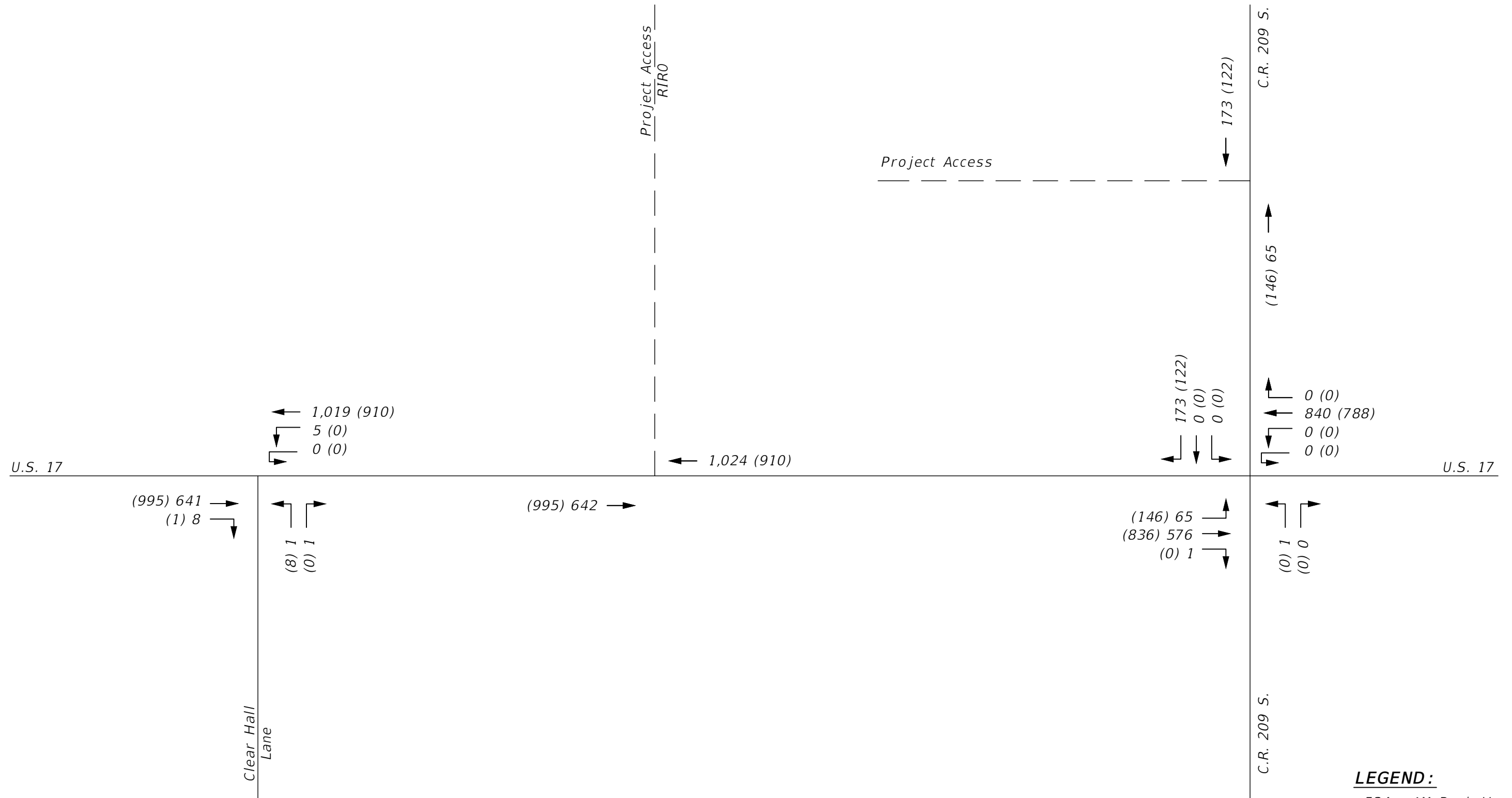
**LEGEND:**  
 534 - AM Peak Hour Traffic  
 (923)- PM Peak Hour Traffic

Figure 04 - Year 2022 AM and PM Peak Hour Traffic Volumes

Preserve at Green Cove Springs - Traffic Study  
 Clay County, Florida



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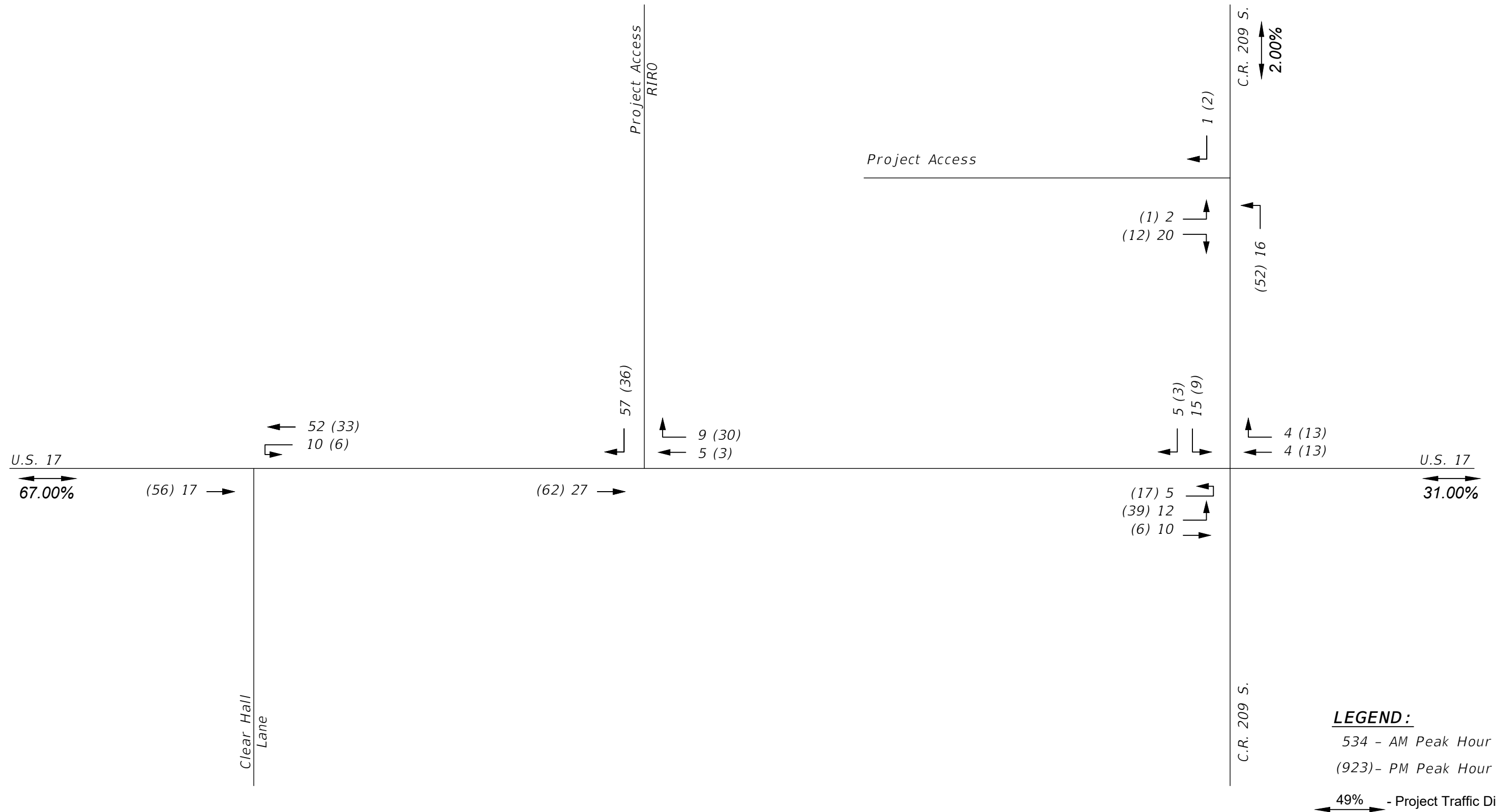
**LEGEND:**  
 534 - AM Peak Hour Traffic  
 (923) - PM Peak Hour Traffic

Figure 05 - Year 2027 AM and PM Peak Hour Background Traffic Volumes

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 Clay County, Florida



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**LEGEND:**  
 534 - AM Peak Hour Traffic  
 (923)- PM Peak Hour Traffic  
 49% - Project Traffic Distribution



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Figure 06 - Year 2027 AM and PM Peak Hour Project Traffic Distribution and Assignment

Preserve at Green Cove Springs - Traffic Study  
 Clay County, Florida

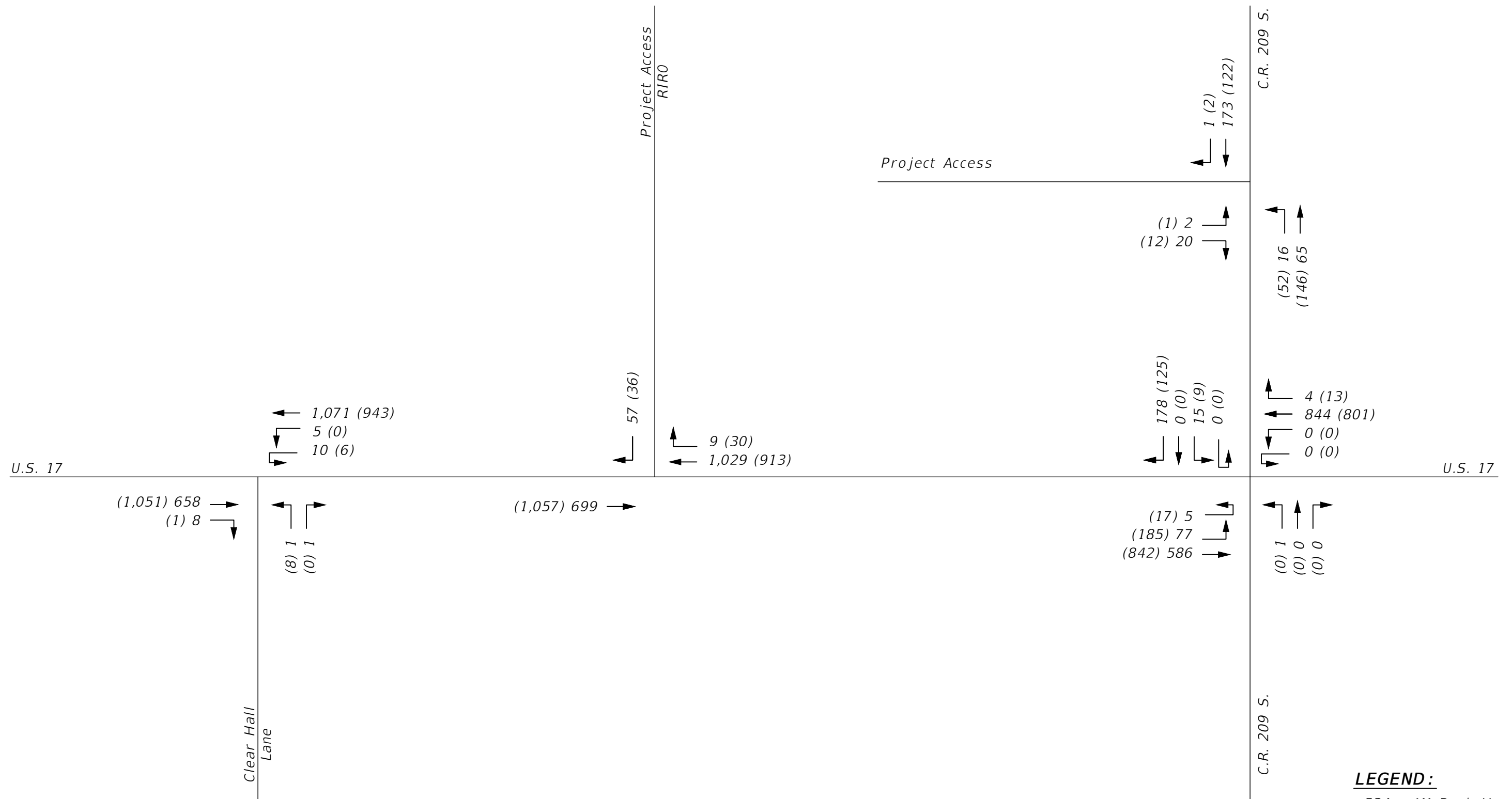


Figure 07 - Year 2027 AM and PM Peak Hour Build-Out Traffic Volumes

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**Table 01**  
**Trip Generation**  
**Preserve at Green Cove Springs TIA, The City of Green Cove Springs, FL**

ITE Land Use Code	Description	Quantity	Units	Time Period	Rate or Equation	Percent Traffic		Project Trips		
						Entering	Exiting	Total	Entering	Exiting
220	Multi-family Residential (Apartments)	260	Dwelling Units	Daily	$T = 6.41(X) + 75.31$	50%	50%	1,742	871	871
				AM Peak	$T = 0.31(X) + 22.85$	24%	76%	103	25	78
				PM Peak	$T = 0.43(X) + 20.55$	63%	37%	132	83	49

Source: Trip Generation Manual, 11th Edition, ITE

Note: Please note that the zoning allows for a maximum of 278 dwelling units. However, based on the current site plan a maximum of 260 dwelling is proposed for construction.

**Table 02**  
**Roadway Characteristics Inventory**  
**Preserve at Green Cove Springs TIA, The City of Green Cove Springs, FL**

Roadway	Segment	Agency	Speed Limit	Adopted LOS	Adopted LOS Peak Hour MSV	Length (Miles)	Lanes	Facility Type	Area Type	Source	2019 ADT Collected	Year 2019 Peak Hour Traffic Volumes	Growth Rate	Year 2022 Peak Hour Traffic Volumes	Existing Conditions V/C Ratio	Existing Conditions LOS
US 17	Green Cove Springs to SR 16 West	FDOT	35	D	2,920	1.26	4 - DIV	Prin. Arterial	Urban	FDOT	24,000	2,160	4.07%	2,435	83.39%	D
US 17	SR 16 West to SR 16 East	FDOT	55	D	3,580	0.63	4 - DIV	Prin. Arterial	Urban	FDOT	21,500	1,935	3.93%	2,172	60.67%	D
US 17	SR 16 East to CR 209	FDOT	55	D	3,580	1.61	4 - DIV	Prin. Arterial	Transition	FDOT	14,100	1,269	5.37%	1,485	41.48%	C
US 17	CR 209 to CR 226	FDOT	55	D	3,580	3.18	4 - DIV	Prin. Arterial	Transition	FDOT	10,900	981	1.14%	1,015	28.35%	C
US 17	CR 226 to Putnam County Line	FDOT	60	B	4,460	10.20	4 - DIV	Highway	Rural	FDOT	12,803	1,152	6.01%	1,372	30.76%	C
SR 16	Oak Ridge Avenue to US 17	FDOT	35	D	2,774	1.12	4-Un Div	Major Arterial	Urban	FDOT	11,500	1,035	4.13%	1,169	42.14%	C
SR 16	US 17 to Slow Tide Road	FDOT	45	E	3,070	1.26	4 - Div	Highway	Transition	FDOT	19,694	1,772	5.92%	2,106	68.60%	D
Oak Ridge Avenue	SR 16 to Green Cove Avenue	GCS	35	D	1,161	0.59	2	Minor Collector	Urban	FDOT	2,200	198	5.26%	231	19.90%	C
Oak Ridge Avenue	Green Cove Avenue to US 17	GCS	35	D	1,161	3.1	2	Minor Collector	Urban	FDOT	2,200	198	5.26%	231	19.90%	C
Green Cove Avenue	US 17 to Oak Ridge Avenue	GCS	25	D	1,161	1.14	2	Local Road	Urban	FDOT	1,600	144	3.85%	161	13.87%	C
First Coast Expressway	SR 16 to US 17	FDOT	65	D	6,700	6.45	4 - DIV	Freeway	Urban	FDOT	-	-	2.00%	-	0.00%	C
CR 209	East of US 17	Clay County	55	D	2,110	1.69	2	Highway	Rural	All Traffic Data	-	-	0.00%	174	8.25%	C

Attachment B - FDOT Traffic Counts Data

**Table 03****Project Traffic Distribution and Assignment****Preserve at Green Cove Springs TIA, The City of Green Cove Springs, FL**

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<b>Roadway</b>	<b>From/To</b>	<b>Adopted LOS Peak Hour MSV</b>	<b>Residential Project Traffic Distribution</b>	<b>Residential Project Traffic Assignment</b>	<b>Project Traffic % of MSV</b>
US 17	Green Cove Springs to SR 16 West	2,920	24.06%	32	1.10%
US 17	SR 16 West to SR 16 East	3,580	33.73%	45	1.26%
US 17	SR 16 East to CR 209	3,580	67.04%	88	2.46%
US 17	CR 209 to CR 226	3,580	30.98%	41	1.15%
US 17	CR 226 to Putnam County Line	4,460	7.18%	9	0.20%
SR 16	Oak Ridge Avenue to US 17	2,774	8.47%	11	0.40%
SR 16	US 17 to Slow Tide Road	3,070	33.31%	44	1.43%
Oak Ridge Avenue	SR 16 to Green Cove Avenue	1,161	1.33%	2	0.17%
Oak Ridge Avenue	Green Cove Avenue to US 17	1,161	1.45%	2	0.17%
Green Cove Avenue	US 17 to Oak Ridge Avenue	1,161	0.00%	-	0.00%
First Coast Expressway	SR 16 to US 17	6,700	23.81%	31	0.46%
CR 209	East of US 17	2,110	1.98%	3	0.14%

Attachment D - Travel Demand Model Plots

**Table 04**  
**Roadway Characteristics Inventory**  
**Preserve at Green Cove Springs TIA, The City of Green Cove Springs, FL**

Roadway	Segment	Agency	Speed Limit	Adopted LOS	Adopted LOS Peak Hour MSV	Growth Rate	Year 2022 Peak Hour Traffic Volumes	Existing Conditions V/C Ratio	Year 2027 Background Peak Hour Traffic Volumes	Year 2027 Background Peak Hour V/C Ratio	Year 2027 Background LOS	Residential Project Traffic Assignment	Project Traffic % of MSV	Roadway Segment Impacted	Year 2027 Build-Out Peak Hour Traffic Volumes	Year 2027 Build-Out Traffic % of MSV	Roadway Segment Adversely Impacted	Year 2027 Build-Out LOS
US 17	Green Cove Springs to SR 16 West	FDOT	35	D	2,920	4.07%	2,435	83.39%	2,973	101.82%	F	32	1.10%	No	3,005	102.91%	No	F
US 17	SR 16 West to SR 16 East	FDOT	55	D	3,580	3.93%	2,172	60.67%	2,634	73.58%	D	45	1.26%	No	2,679	74.83%	No	D
US 17	SR 16 East to CR 209	FDOT	55	D	3,580	5.37%	1,485	41.48%	1,929	53.88%	D	88	2.46%	No	2,017	56.34%	No	D
US 17	CR 209 to CR 226	FDOT	55	D	3,580	2.00%	1,015	28.35%	1,121	31.31%	C	41	1.15%	No	1,162	32.46%	No	C
US 17	CR 226 to Putnam County Line	FDOT	60	B	4,460	6.01%	1,372	30.76%	1,837	41.19%	C	9	0.20%	No	1,846	41.39%	No	C
SR 16	Oak Ridge Avenue to US 17	FDOT	35	D	2,774	4.13%	1,169	42.14%	1,431	51.59%	D	11	0.40%	No	1,442	51.98%	No	D
SR 16	US 17 to Slow Tide Road	FDOT	45	E	3,070	5.92%	2,106	68.60%	2,808	91.47%	D	44	1.43%	No	2,852	92.90%	No	D
Oak Ridge Avenue	SR 16 to Green Cove Avenue	GCS	35	D	1,161	5.26%	231	19.90%	298	25.67%	C	2	0.17%	No	300	25.84%	No	C
Oak Ridge Avenue	Green Cove Avenue to US 17	GCS	35	D	1,161	5.26%	231	19.90%	298	25.67%	C	2	0.17%	No	300	25.84%	No	C
Green Cove Avenue	US 17 to Oak Ridge Avenue	GCS	25	D	1,161	3.85%	161	13.87%	194	16.71%	C	-	0.00%	No	194	16.71%	No	C
First Coast Expressway	SR 16 to US 17	FDOT	65	D	6,700	2.00%	-	0.00%	-	0.00%	C	31	0.46%	No	31	0.46%	No	C
CR 209	East of US 17	Clay County	55	D	2,110	2.00%	174	8.25%	192	9.10%	C	3	0.14%	No	195	9.24%	No	C

Note: A minimum of 2.0% Growth Rate was applied to US 17, First Coast Expressway and CR 209

**Table 05**  
**Intersection Capacity Analysis - HCM Delay and LOS Summary**  
**Preserve at Green Cove Springs TIA, The City of Green Cove Springs, FL**

Intersection	Approach	Traffic Control	AM Peak			PM Peak		
			Delay	LOS	95th Percentile Queue (Feet)	Delay	LOS	95th Percentile Queue (Feet)
<b>Year 2022 Existing Conditions</b>								
US 17 at Clear Hall Lane	NBL	Yield	8.60	A	0	0.00	A	0
	EB	Stop	15.9	C	0	17.5	C	25
US 17 at CR 209 South	NBL	Yield	0.00	A	0	0.00	A	0
	SBL	Yield	9.9	A	25	9.5	A	25
	EB	Stop	18.80	C	0	0.00	A	0
	WB	Stop	12.5	B	25	11.4	B	25
<b>Year 2027 Background Conditions</b>								
US 17 at Clear Hall Lane	NBL	Yield	9.10	A	0	0.00	A	0
	EB	Stop	19.6	C	0	22.6	C	25
US 17 at CR 209 South	NBL	Yield	0.00	A	0	0.00	A	0
	SBL	Yield	11.2	B	25	10.8	B	25
	EB	Stop	26.70	D	25	0.00	A	0
	WB	Stop	15.5	C	50	13.1	B	25
<b>Year 2027 Build-Out Conditions</b>								
US 17 at Clear Hall Lane	NBL	Yield	11.60	B	25	18.70	C	25
	EB	Stop	20.7	C	25	24.4	C	25
US 17 at Proposed Project Access Driveway	WBR	Stop	15.40	C	25	13.90	B	25
US 17 at CR 209 South	NBL	Yield	0.00	A	0	0.00	A	0
	SBL	Yield	12.3	B	25	12.8	B	50
	EB	Stop	29.00	D	25	0.00	A	0
	WB	Stop	19.1	C	75	16.3	C	50
CR 209 South at Project Access Driveway	EBL	Yield	7.60	A	0	7.60	A	25
	SB	Stop	9.4	A	25	9.2	A	0

Attachment H - HCM Worksheets

# ***Attachment A***

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Project Site Plan

Source: Matthews Design Group, Inc.

PROJECT: 2020020204 - GREEN COVE MULTIFAMILY RESIDUAL MANAGED CONCEPT PLAN (DWS), L.L. 5/10/2022, 10:01 AM, Brenda Lawrence, MATTHEWS DESIGN GROUP, INC.  
 PLOT: 2024.D. 0400

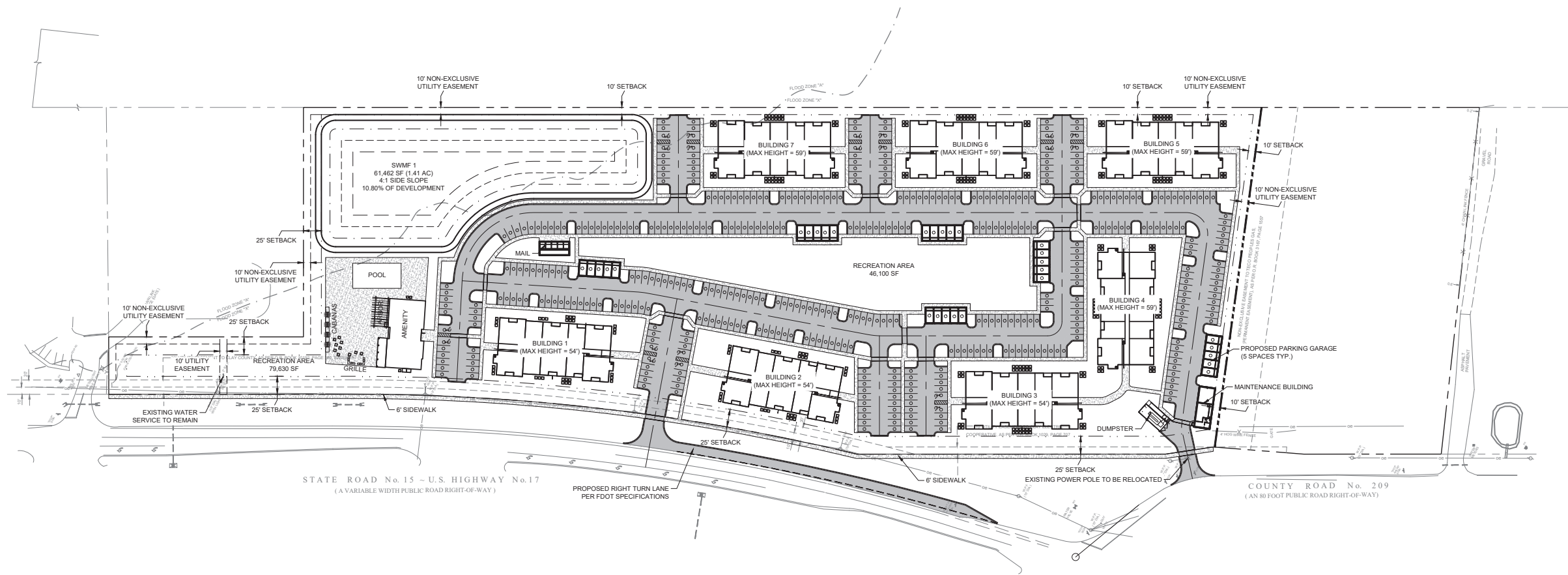
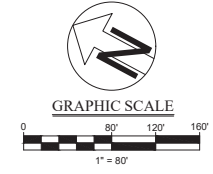
SITE DATA TABLE		
TOTAL SITE AREA	13.93 AC	606,739 SF
PROPOSED BUILDING		100,285 SF
PROPOSED IMPERVIOUS AREA		210,773 SF
PROPOSED POND AREA (NWL)		47,788 SF
PROPOSED RECREATION AREA		125,720 SF
TOTAL IMPERVIOUS		358,847 SF
TOTAL PERVIOUS		247,892 SF
TOTAL IMPERVIOUS %		59%
TOTAL PERVIOUS %		41%
% BUILDING COVERAGE		17%
TOTAL FLOOR AREA		354,174 SF
FLOOR AREA RATIO (FAR)		58.4%
PARCEL NUMBER(S)	38-06-26-016499-007-00	
911 ADDRESS	US HIGHWAY 17 AND CR 209 SOUTH	
FEMA PANEL NUMBER	12019C0283E	
FLOOD ZONE	ZONE X & A	

PARKING CALCULATIONS	
TOTAL MINIMUM REQUIRED	= 457 SPACES
TOTAL PROVIDED	= 467 SPACES

DENSITY	
MAXIMUM ALLOWED DENSITY	= 278 UNITS
	= 20 UNITS / ACRE
DENSITY AS DEPICTED	= 260 UNITS

HATCH LEGEND	
ASPHALT PAVEMENT	
CONCRETE SIDEWALK	

CONCEPT SITE PLAN IS SUBJECT TO REVISIONS BASED ON FINAL SITE PLAN APPROVAL AND CONSTRUCTION PLAN APPROVAL



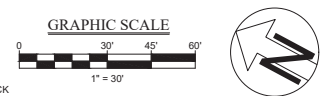
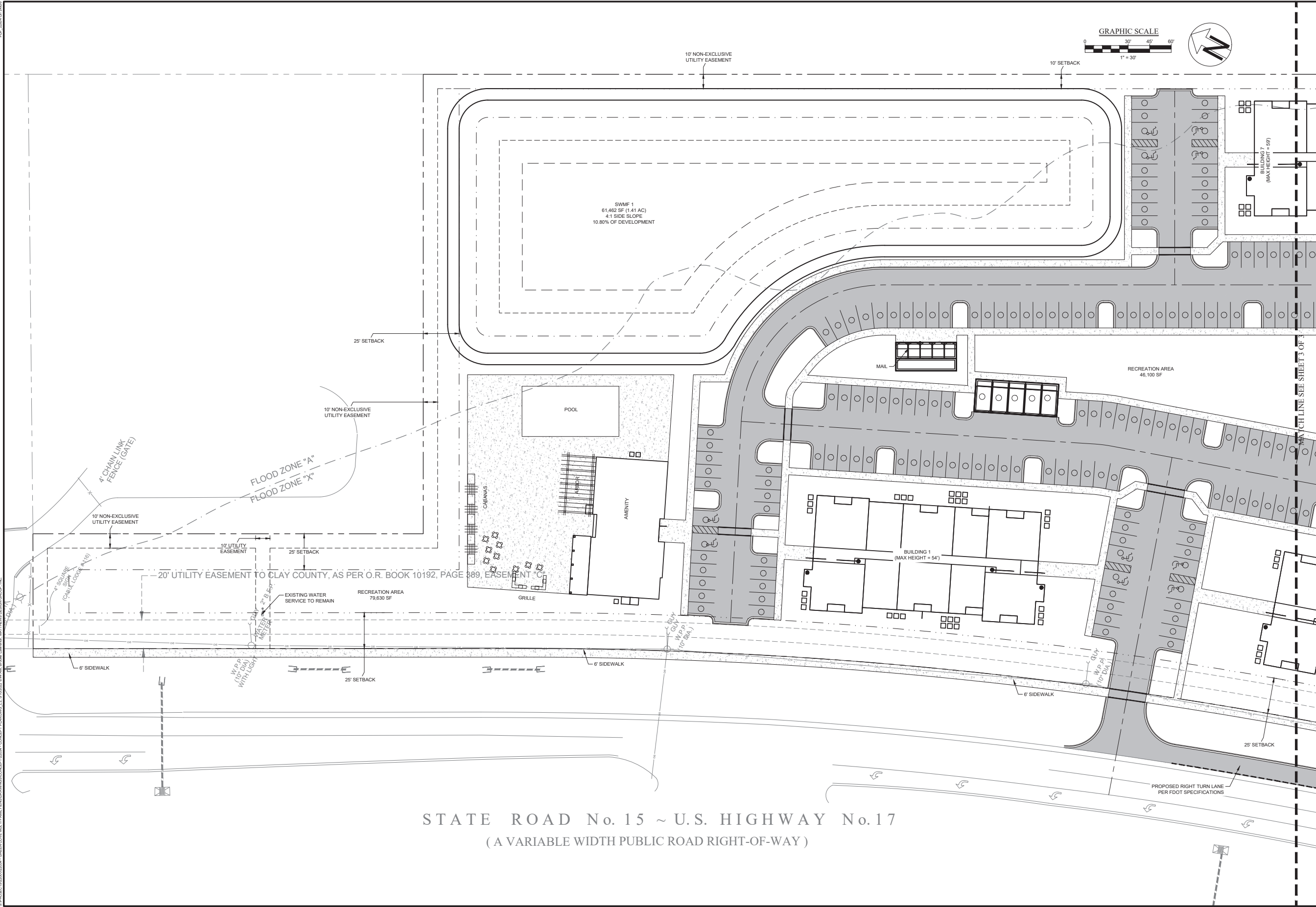
REVISIONS	
NO.	DESCRIPTION

DATE	BY	DESCRIPTION
04-12-2022	ARA	
2/20/24	DTS	

**MATTHEWS DESIGN GROUP**  
 P.O. BOX 3126, 7 WALDO STREET  
 ST. AUGUSTINE, FL 32084  
 PHONE: 904.826.1334 • FAX: 904.826.4547  
 INFO@MDGINC.COM

**MASTER SITE PLAN**  
**GREEN COVE MULTI FAMILY**  
 GREEN COVE SPRINGS, FLORIDA  
 PREPARED FOR  
 PIEDMONT PRIVATE EQUITY

PROJECT: 2020020204 - GREEN COVE HALL 11 FAMILY HANDBOOK CONCEPT PLANNING L.L. 01/2022 844 A.M. BROWARD COUNTY, MATTHEWS DESIGN GROUP, INC.



STATE ROAD No. 15 ~ U.S. HIGHWAY No. 17  
(A VARIABLE WIDTH PUBLIC ROAD RIGHT-OF-WAY)

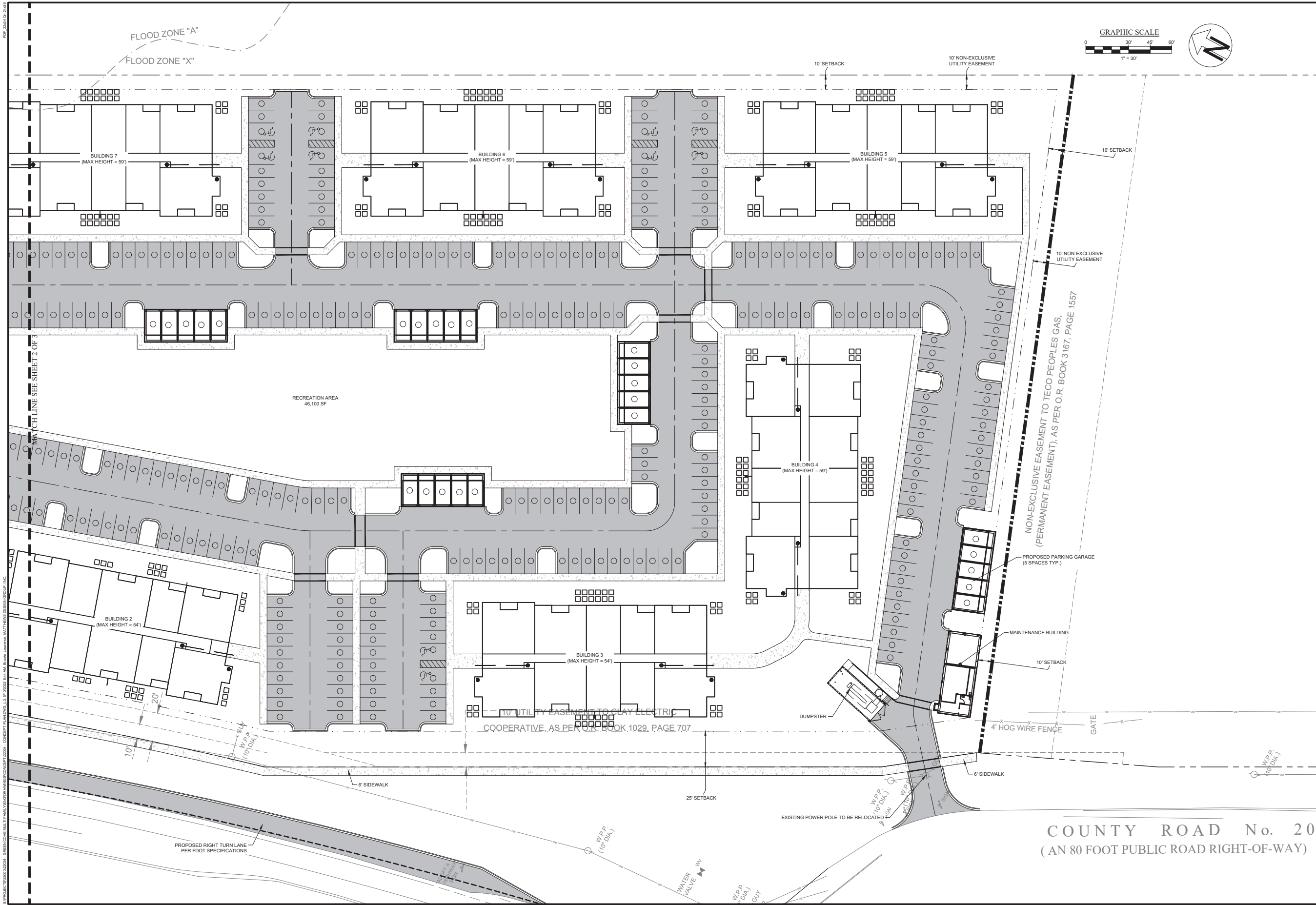
NO.	DATE	DESCRIPTION

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**SITE PLAN**  
**GREEN COVE MULTI FAMILY**  
 GREEN COVE SPRINGS, FLORIDA  
 PREPARED FOR  
 PIEDMONT PRIVATE EQUITY



PROJECT: 202001020204 - GREEN COVE MULTI FAMILY RESIDENCE CONCEPT PLAN (SHEET 3 OF 3) DATE: 04/12/2022 DRAWN BY: MATHIEWS DESIGN GROUP, INC. CHECKED BY: MATHIEWS DESIGN GROUP, INC.



NO.	DATE	DESCRIPTION

DESIGNED BY	DTS	DATE	22034
CHECKED BY	ARA	DATE	04-12-2022
DRAWN BY			

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 INFO@MDGINC.COM

**SITE PLAN**  
**GREEN COVE MULTI FAMILY**  
 GREEN COVE SPRINGS, FLORIDA  
 PREPARED FOR  
 PIEDMONT PRIVATE EQUITY

# ***Attachment B***

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Methodology Document

**To: Mr. Michael Daniels, AICP**  
Planning and Zoning Director  
City of Green Cove Springs, FL

From: Rajesh K. Chindalur, P.E., PTOE  
Project: Green Cove Springs – Multi-family  
Client: PC Acquisitions, LLC  
Project No.: 1146-220-007  
Date: 05/03/2022

***Introduction:***

A multi-family residential development that is anticipated to include 260 units is proposed for construction in the City of Green Cove Springs, FL. The proposed development will be located on the northeast quadrant of US 17 and CR 209. Access to the proposed development will be provided via a right-in-right-out driveway on US 17 and a second driveway on CR 209. The following methodology will be adopted to complete the traffic impact study (TIS) to determine the impacts of the proposed development. A copy of the site plan provided by Matthews Design Group, Inc. is included as **Attachment A**.

***Trip Generation:***

Trip generation and for the proposed residential portion of the development will be estimated using the rates and equations included in the Trip Generation Manual, 11<sup>th</sup> Edition published by the ITE. Attached **Table 01** summarizes the Daily, AM and PM peak trips anticipated by the proposed development. As shown in this table, the proposed residential development is anticipated to generate 1,742 Daily trips which includes 103 AM peak and 132 PM peak trips.

***Study Roadway Segments and Intersections:***

Since the proposed development is anticipated to generate a total of 132 PM peak trips (greater than the 50 PM peak trips threshold), the study area will include all the roadway segments and intersections where in the project traffic is anticipated to be equal to or greater than five percent (5%) of the roadway segment adopted LOS maximum service volume (MSV). **Table 02** shows the existing conditions of the roadway segments within the vicinity of the proposed development. The existing conditions data for the study roadway segments were obtained from the FDOT traffic counts and Clay County Transportation Analysis Spreadsheet.

***Planned and Programmed Roadways:***

The County Capital Improvement Plan (CIP), FDOT Planned and Programmed Improvements and NFTP L RTP will be reviewed to determine any planned and programmed roadways within study roadway segments. The following projects are anticipated to be planned and programmed roadways:

- First Coast Expressway – SR 16 to US 17

***Project Traffic Distribution & Assignment:***

Project traffic distribution percentages on the study roadway segments using the interim year 2025 NERPM\_ABv3 travel demand model run. **Attachment B** includes copies of the travel demand model plots. **Table 03** summarizes the project traffic distribution and assignment on the roadway segments in the vicinity of the proposed development.

***Future Traffic Volumes:***

The proposed development is anticipated to be constructed and occupied by the end of year 2025. However, the traffic impact analysis will be performed under the year 2027 conditions. The future traffic volumes on the study roadway segments were estimated by applying a growth rate to the year 2019 and 2022 traffic volumes. The growth rate was estimated by performing trends analysis of the study roadway

segments historical AADT. The historical AADT of the study roadway segments was obtained from the FDOT Traffic Counts Online Portal. **Attachment C** includes copies of the historical AADT, and the trends analysis of the study roadway segments.

**Roadway Segment Analysis:**

The segment analysis of the study area roadway segments will be performed to determine any impacts and adverse impacts due to the additional trips from the proposed development. The roadway segment will be considered impacted if the project traffic assignment (new trips) is equal to or greater than 5% of its adopted LOS maximum service volume (MSV). A study area roadway segment will be considered adversely impacted if that roadway segment is impacted (project new trips 5% of its adopted LOS MSV) and the total traffic (Existing trips + Reserved Trips + New Project Traffic) exceed 100% of the roadway segments adopted LOS MSV. **Table 04** summarizes the roadway segments analysis of the study roadway segments. As shown in this table, none of the study roadway segments are anticipated to be either impacted or adversely impacted under the build-out conditions of the proposed development.

**Access Intersections:**

Based on the discussions with FDOT staff, the project access on US 17 will be a right-in-right-out just north of CR 209 intersection and a full access roadway connection on CR 209 South just east of US 17. The above-mentioned access locations are shown in previously mentioned site plan. FDOT staff require the access evaluation to determine the following:

- The need for a northbound right turn lane on US 17 at the proposed project access driveway
- Adequacy of the existing southbound left turn lane on US 17 at CR 209 South intersection

**Intersection Capacity Analysis:**

Since the project traffic is not anticipated to be equal or greater than the study roadway segments' adopted LOS maximum service volume (MSV), intersection analysis other than the above stated intersections is not anticipated to be required.

**TIA Report:**

A report summarizing the above tasks and the outcome of the analysis will be prepared for submittal to FDOT and the City of Green Cove Springs.

If you have any questions or comments, please give me a call at (904) 422 6923.

Sincerely,  
Chindalur Traffic Solutions, Inc.



Rajesh K. Chindalur, P.E., PTOE  
8833 Perimeter Park Boulevard, Suite 103, Jacksonville, FL 32216  
(904) 619-3368 | [Chindalur@ctrfficsolutions.com](mailto:Chindalur@ctrfficsolutions.com)

cc: Mr. John Cattano (cattanoj@aol.com)  
Ms. Ellen Avery Smith (eaverysmith@rtlaw.com)

# ***Attachment C***

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## Planned and Programmed Improvements

**Attachment C**  
**Planned and Programmed Improvements in Clay County, Florida**  
**Green Cove Springs Multi-family TIA**

Project Description	Project Limits	Length	No. Of Lanes	Description	Budeget	Construction	
						Start Date	End Date
Middleburg, CR 218	Cosmos Ave to Pine Tree Lane	2.7	4	Widen from 2 to 4 Lanes	\$ 21,116,633.00	Summer 2022	Fall 2024
Lake Asbury CR 209 (Russell Rd)	CR 315B to US 17 and from CR 315 to South of Peter's Creek	1.1	4	Widen from 2 to 4 Lanes	\$ 11,318,996.00	Summer 2022	Summer 2024
Lake Asbury CR 209 (Russell Rd), Lake Asbury CR739B (Sandridge)	Sandridge Road to Peter's Creek Bridge	3.1	3	Widen from 2 to 3 Lanes	\$ 20,600,481.00	Summer 2023	Fall 2024
Middleburg, CR 220	Henley Road to CR 209 (Russell)	2.8	3	Widen from 2 to 3 Lanes	\$ 18,933,785.00	Spring 2023	Fall 2024
Green Cove Springs / Lake Asbury (First Coast Connector)	Baxley Road to West of Henley Road	1.2	4	Widen from 2 to 4 Lanes	\$ 11,101,379.00	Summer 2022	Fall 2024
Green Cove Springs (First Coast Connector)	Maryland Avenue to US 17	1.2	4	Widen from 2 to 4 Lanes	\$ 9,604,889.00	Fall 2022	Summer 2024
	SR 23 to CR 315/Maryland Ave Intersection	3.3	2	New 2 Lane Roadway	\$ 38,553,380.00	Fall 2022	Summer 2024
					\$ 131,229,543.00		

Source: <https://www.claycountygov.com/government/bonded-transportation-program>